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# New Antibiotic Prescribing Measure Key to Curbing Inappropriate Use

Health care stakeholders can improve outpatient stewardship by tracking and reporting use of these drugs for acute respiratory conditions

## Overview

Inappropriate antibiotic prescribing for acute respiratory conditions such as bronchitis and the common cold contributes not only to the development of antibiotic-resistant pathogens, but also causes potential harm to patients because of an increased risk of adverse drug events. In addition, it often results in unnecessary health care spending.

A newly validated measure from the National Committee for Quality Assurance (NCQA), a nonprofit organization that develops widely used metrics for evaluating and improving health care outcomes, provides a way for stakeholders to analyze prescribing practices for acute respiratory conditions and provide feedback on the inappropriate use of antibiotics to providers within their networks. Such feedback on how providers are prescribing for these common conditions, leveraging validated measures—such as the NCQA's Antibiotic Utilization for Respiratory Conditions (AXR) measure—is one effective way to minimize inappropriate antibiotic prescribing and improve patient outcomes.

# Improving antibiotic use by evaluating prescribing practices

Improving antibiotic prescribing practices in outpatient health care settings in the United States is critical both to improving public health and to ensuring the quality of care received by individual patients. Antibiotic use remains a primary driver in the development of antibiotic-resistant bacteria, which cause more than 2.8 million infections and 35,000 deaths nationwide each year.[1] In particular, antibiotic prescribing in outpatient settings has shown clear room for improvement, with one study finding that 30% of antibiotics prescribed in these settings are unnecessary.[2] In too many instances they continue to be prescribed for conditions, such as viral infections, where antibiotics are not warranted.

## A focus on prescriptions for acute respiratory conditions

Medical providers in outpatient settings most often inappropriately prescribe antibiotics to treat acute respiratory conditions, such as bronchitis and the common cold. Research shows that overall, about half of outpatient prescriptions written for these conditions are not needed.[3] Additionally, for conditions that do sometimes warrant antibiotic use, such as sinus infections, middle ear infections, and pharyngitis, providers prescribe the most appropriate antibiotics according to clinical practice guidelines in only about half of cases.[4]

Inappropriate prescribing for these conditions also affects individual patients and increases health care costs. Two recent studies found that such prescribing in outpatient settings for common respiratory infections significantly increases the risk of some adverse drug events.[5] For example, inappropriate antibiotic prescribing for pharyngitis resulted in an eight times increased risk in children and a three times increased risk in adults in the occurrence of *Clostridioides difficile*—formerly known as *Clostridium difficile*—infection, a type of infection that can result in potentially life-threatening diarrhea.[6]

These studies also show that inappropriate outpatient prescribing of antibiotics resulted in an estimated $74 million in excess health care costs in pediatric patients and nearly $69 million in adult patients in 2017 alone.[7] The estimates were based on patients enrolled in employer-sponsored health insurance plans, so the true excess costs are likely higher when taking into account patients enrolled in other types of health plans, such as Medicaid and Medicare, as well as uninsured patients.

To help better understand and improve antibiotic prescribing practices for these key conditions, NCQA, which maintains a group of health care quality measures known as the Healthcare Effectiveness Data and Information Set, has developed a quality measure that can be used to analyze antibiotic prescribing practices for acute respiratory conditions. The AXR measure—developed with feedback from expert stakeholders and tested for validity—assesses overall antibiotic use for patients three months and older with a respiratory condition diagnosis that resulted in an antibiotic prescription in an outpatient setting. That includes primary care, urgent care, and emergency department visits.[8]

## Importance of analyzing prescribing data and providing feedback

Quality measures such as the AXR measure are critical tools for improving outpatient antibiotic prescribing practices. The Centers for Disease Control and Prevention has defined four core elements of outpatient stewardship: commitment, action for policy and practice, tracking and reporting, and education and expertise.[9]

In particular, tracking and reporting—i.e., analyzing antibiotic prescribing data and providing direct feedback to health care providers—can help stewardship leaders and individual clinicians understand where improvements in prescribing are most needed.

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### Core Elements of Outpatient Antibiotic Stewardship

The Centers for Disease Control and Prevention's principles for antibiotic stewardship in outpatient settings seek to limit the inappropriate use of these critical drugs to improve patient care and ensure the continued effectiveness of antibiotics. The principles are divided into four core elements:

1. **Commitment.** All health care team members commit to engaging in antibiotic stewardship and prescribing antibiotics appropriately. Outpatient health care leaders can demonstrate commitment by identifying a leader to direct stewardship activities, building antibiotic stewardship into job criteria, and displaying posters in waiting rooms and other outpatient office areas showing the organization's commitment to prescribing antibiotics appropriately.

2. **Action for policy and practice.** Clinicians and outpatient health care leaders can implement evidence-based interventions focused on improving patient outcomes, such as those aimed at enhancing communication strategies or updating clinical decision-making support systems.

3. **Tracking and reporting.** Outpatient health systems can collect data and provide feedback to their own health care providers on antibiotic prescribing practice to ensure adherence to clinical practice guidelines.

4. **Education and expertise.** Outpatient health care leaders can improve the health literacy of patients by providing educational materials such as pamphlets on appropriate antibiotic prescribing. Leaders also can provide educational training and access to continuing education opportunities to ensure clinicians have an up-to-date understanding of clinical guidelines and approaches for ensuring appropriate antibiotic prescribing.

Source: Centers for Disease Control and Prevention

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Studies have shown the positive impact that providing feedback to providers on their prescribing practices has on reducing inappropriate prescribing.[10] Most of this research, however, has focused on giving that feedback to clinicians using measures focused on individual diagnoses—for example, avoiding antibiotic use for viral upper respiratory infections or improving the number of patients who receive the recommended (i.e., most appropriate) first-line antibiotic to treat middle ear infections—rather than looking at overall prescribing for acute respiratory conditions as in the AXR measure. Although this type of feedback can have a clear impact on prescribing practices, such diagnosis-specific measures also have limitations.

First, diagnosis-specific measures focus on a small subset of antibiotic prescriptions that providers write to treat patients. That means they often provide limited insight into how providers are prescribing for patients with acute respiratory conditions overall. Second, diagnosis-specific measures can be affected by concerns around potential "diagnosis shifting." This occurs when health care providers are more likely to diagnosis a patient with an antibiotic-appropriate diagnosis when prescribing an antibiotic—even if it is possible that a patient has a viral infection.[11] Previous studies have shown that some providers appear to modify diagnoses to justify antibiotic prescriptions.[12] This can affect prescribing feedback that only focuses on one diagnosis, such as bronchitis, because providers may be more likely to use a different diagnosis—such as pneumonia—if they prescribe an antibiotic for that patient.

Focusing feedback efforts on overall antibiotic prescribing for acute respiratory conditions using measures such as the AXR measure helps to overcome these limitations by looking at the full range of potential diagnoses for patients with similar symptoms. Stewardship leaders at Intermountain Health, a nonprofit health care system spanning several states in the western U.S., successfully leveraged this type of measure to support improved antibiotic prescribing in urgent care clinics within their network.[13] They incorporated this measure into a transparent prescribing dashboard that all urgent care clinicians can access. And they put in place other stewardship efforts, including patient education efforts and implementation of quality goals to reduce prescribing. This work resulted in a 15% absolute reduction in antibiotic prescribing for respiratory conditions after one year and demonstrates the potential impact of incorporating a measure to evaluate overall antibiotic prescribing for acute respiratory conditions into broader stewardship efforts.

## The role of health care stakeholders in expanding use of an acute respiratory quality measure

Health care stakeholders—in particular, health care payers—can play an important role in expanding the use of the AXR measure to better understand acute respiratory prescribing. Specifically:

- Health care payers can leverage this measure to assess the antibiotic prescribing practices of providers within their networks and offer feedback to improve prescribing. They can also incorporate the measure into their quality improvement programs to incentivize improvements in antibiotic prescribing practices.

- State Medicaid agencies can leverage the measure within their quality improvement programs, assessing providers and other stakeholders—such as managed care organizations—on their performance and identifying potential areas for improvement.

- The Centers for Medicare and Medicaid can incorporate the measure into the Adult and Child Core Measure Sets maintained by the agency to assess the quality of care provided to patients enrolled in Medicaid and the Children's Health Insurance Program.

Wider uptake of this important quality measure will support more than improved outpatient antibiotic prescribing; it also will help minimize the development of antibiotic resistance and improve patient care overall.

# Endnotes

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9   G.V. Sanchez et al., "The Core Elements of Outpatient Antibiotic Stewardship," *MMWR Recommendations and Reports* 65, no. RR-6 (2016): 1-12, https://www.cdc.gov/antibiotic-use/community/pdfs/16_268900-A_CoreElementsOutpatient_508.pdf.

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